



LIBGDX-AI (PATHFINDING)





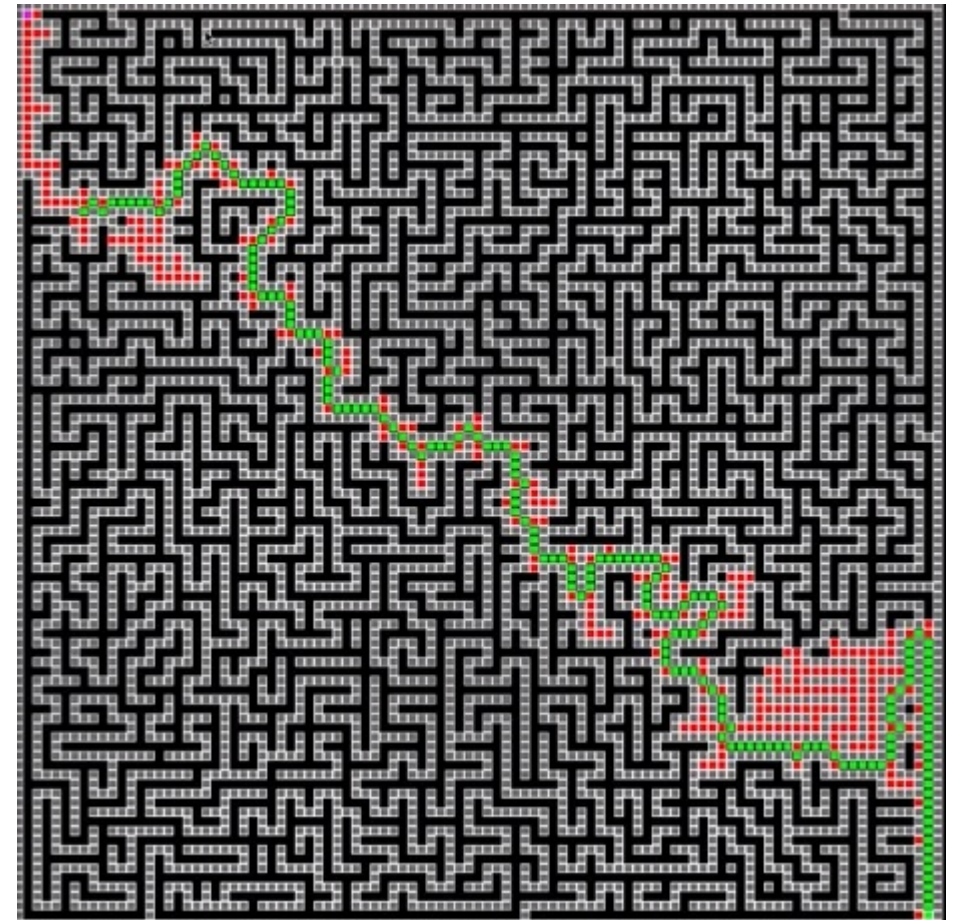
WHAT'S LIBGDX-AI ?

- It's an artificial intelligence framework, entirely written in Java
- The gdxAI framework makes use of a limited number of classes from the libGDX framework, but since version 1.4.1 the gdx-ai extension has been moved to a separate repository under the libGDX umbrella
- Current version 1.8.1



Main Resources

- Infraestructure
 - Message handling
 - Scheduling
- Movement Ai
 - Steering Behaviors
 - Formation motion
- Pathfinding
 - Pathfinding Api
 - A*
 - Hierarchical Path Finder
 - Path Smoothing
- Decision Making
 - State Machine
 - Behavior Trees





Pathfinding Api

- To find a path inside a graph, it provides a different interfaces
- The GraphPath
 - Basically represents all possible paths inside a graph
- The Heuristic
 - It's a fuction that generates estimated costs to move from one point to another
- The Pathfinder
 - Using the graph calculates all possible ways to reach the objective, using also the heuristic selects de shortest one in terms of time



A*

- A* is a heuristic search algorithm for finding a path through a graph, is 2d or 3d games that graph should be the map
 - A* is not inherently a multi-agent path finding algorithm, but exists different adaptations for that situations
 - It always find the shortest path
 - If a path exists, it will be found

Hierarchical Path Finder

- Plans a route in much the same way as a people would
 - Each stage of the path will consist in another



Path Smoothing

- Uses a SmoothableGraphPath and finds a path by linking directly the nodes that are in line of sight
 - if they were connected in the graph, the pathfinder would have found the smoothed route directly, unless their connections had dramatically large costs